

use of appropriate crewmembers. In addition, protective breathing equipment must be installed in each isolated separate compartment in the airplane, including upper and lower lobe galleys, in which crewmember occupancy is permitted during flight for the maximum number of crewmembers expected to be in the area during any operation.

(b) For protective breathing equipment required by paragraph (a) of this section or by any operating rule of this chapter, the following apply:

(1) The equipment must be designed to protect the flight crew from smoke, carbon dioxide, and other harmful gases while on flight deck duty and while combating fires in cargo compartments.

(2) The equipment must include—

(i) Masks covering the eyes, nose, and mouth; or

(ii) Masks covering the nose and mouth, plus accessory equipment to cover the eyes.

(3) The equipment, while in use, must allow the flight crew to use the radio equipment and to communicate with each other, while at their assigned duty stations.

(4) The part of the equipment protecting the eyes may not cause any appreciable adverse effect on vision and must allow corrective glasses to be worn.

(5) The equipment must supply protective oxygen of 15 minutes duration per crewmember at a pressure altitude of 8,000 feet with a respiratory minute volume of 30 liters per minute BTPD. If a demand oxygen system is used, a supply of 300 liters of free oxygen at 70° F. and 760 mm. Hg. pressure is considered to be of 15-minute duration at the prescribed altitude and minute volume. If a continuous flow protective breathing system is used (including a mask with a standard rebreather bag) a flow rate of 60 liters per minute at 8,000 feet (45 liters per minute at sea level) and a supply of 600 liters of free oxygen at 70° F. and 760 mm. Hg. pressure is considered to be of 15-minute duration at the prescribed altitude and minute volume. BTPD refers to body temperature conditions (that is, 37° C., at ambient pressure, dry).

(6) The equipment must meet the requirements of paragraphs (b) and (c) of § 25.1441.

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§ 25.1441 Oxygen equipment and supply.

(a) If certification with supplemental oxygen equipment is requested, the equipment must meet the requirements of this section and §§ 25.1443 through 25.1453.

(b) The oxygen system must be free from hazards in itself, in its method of operation, and in its effect upon other components.

(c) There must be a means to allow the crew to readily determine, during flight, the quantity of oxygen available in each source of supply.

(d) The oxygen flow rate and the oxygen equipment for airplanes for which certification for operation above 40,000 feet is requested must be approved.

§ 25.1443 Minimum mass flow of supplemental oxygen.

(a) If continuous flow equipment is installed for use by flight crewmembers, the minimum mass flow of supplemental oxygen required for each crewmember may not be less than the flow required to maintain, during inspiration, a mean tracheal oxygen partial pressure of 149 mm. Hg. when breathing 15 liters per minute, BTPS, and with a maximum tidal volume of 700 cc. with a constant time interval between respirations.

(b) If demand equipment is installed for use by flight crewmembers, the minimum mass flow of supplemental oxygen required for each crewmember may not be less than the flow required to maintain, during inspiration, a mean tracheal oxygen partial pressure of 122 mm. Hg., up to and including a cabin pressure altitude of 35,000 feet, and 95 percent oxygen between cabin pressure altitudes of 35,000 and 40,000 feet, when breathing 20 liters per minute BTPS. In addition, there must be means to allow the crew to use undiluted oxygen at their discretion.

(c) For passengers and cabin attendants, the minimum mass flow of supplemental oxygen required for each